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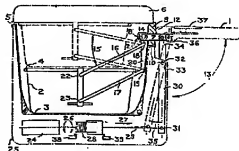
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(44) Electrical cooking appliance including an open-work basket with handle.

(5) Electrical cooking appliance including an openwork basket (2) with handle (1), particularly a domestic deep fryer with a lid (6) in which the handle is associated with a moveable link member (7) able to slide in and out of the cooking vessel (3) in order to displace the basket vertically inside the vessel, is additionally provided with an electrical motor (24) and a coupling mechanism (28, 29) underneath the vat in order to enable automatic operation of the basket under electronic controls. This is achieved by a generally straight pivoted (32) lever (30) whose free end (34) can push on the inside of the U-shaped moveable link member in order to lift the basket just as this movement can be obtained manually by raising the handle from the vertical to the horizontal position. When rotation of the motor in the opposite direction returns the lever to its initial position, the weight of the basket returns the moveable link member to its original position and the handle to a vertical one.



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ELECTRICAL COOKING APPLIANCE INCLUDING
AN OPEN-WORK BASKET WITH HANDLE

The invention relates to an electrical cooking appliance including an open-work basket with handles in which a motor is coupled to the basket in order to raise and lower it with respect to the appliance vessel.

- 5 Electrical cooking appliances of this type are generally known, particularly deep fat fryers such as that disclosed in the US patent No 3 975 997 in which a gear motor is coupled to a tray containing the open-mesh food basket, both the tray and the basket being rocked upwardly out of the
- 10 deep frying vessel by operation of the motor. Such a deep fryer is of a type used in restaurants, particularly for fast food and is not of the domestic type which is usually provided with a lid, such as disclosed for instance in the European patent application published under No 0008838
- 15 The latter discloses a handle with displaceable locking means preventing, when they are operated, relative movements between the basket and the handle so that the latter can be used to manipulate the basket outside the cooking vessel. But when these locking means on the handle are not operated,
- 20 the latter is able to pivot with respect to the basket so that movements of the unlatched handle can displace the basket inside the cooking vessel and with its lid remaining closed. In a first position corresponding also to the latched one for taking the basket outside the vessel, the handle extends
- 25 horizontally and the basket is raised in its upper position

so that it can remain above the frying oil. With the handle unlatched and lowered to a vertical position alongside the appliance however, the basket may be fully immersed into the frying oil. Such a mechanism as well as the use of an elongated handle also readily permit the basket to be shaken between the two extreme positions this being desirable for some frying operations.

A general object of the invention is to realize such an electrical cooking appliance with an electrical motor able to raise and lower the basket inside the cooking vessel with the lid closed.

In accordance with a first characteristic of the invention, the coupling mechanism connecting the motor to the basket includes a pivoted lever acting on a movable link member able to slide in and out of the cooking vessel and connected to the basket to displace it inside the vessel.

Another general object of the invention is to realize such an electrical cooking appliance with a motor enabling the automatic displacement of the cooking vessel but allowing also manual operation. Indeed, with such a motor, electronic controls may be introduced together with automatic timing means whereby lowering of the basket as well as its subsequent removal from the frying bath may be programmed with the deep fryer being eventually left attended. Nevertheless, it would be desirable for the operator to be able to intervene at any time, e.g. to manually remove the basket from the frying oil.

Such a combined automatic and manual operation is already known, for instance from the US patent No 3 908 531 but this automatic deep fryer is again of the general type disclosed in the first mentioned patent so that the basket is again lifted fully out of the frying vessel and pivoted in a partially-inverted dumping position.

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In the French patent application published under No 2 506 040, a motor is also associated to the basket in order to be able to lift it outside the vat when a micro-processor controlling the frying operation indicates that this is completed. However, this deep fryer is again of the same general type as those of the preceding US patents and no means are shown whereby the basket may in this manner be raised and lowered from the frying oil while remaining inside a closed cooking vessel and still allowing manual operation.

10 In accordance with another characteristic of the invention, the coupling mechanism connected to the motor acts on the handle which is connected to a bracket able to be temporarily associated to the cooking vessel, displaceable locking means preventing, when they are operated, relative
15 displacements between the basket, the handle and the bracket but, when they are not operated, enabling movements of the handle to displace the basket inside the vessel.

Accordingly, instead of the motor acting on a pinion and rack arrangement to raise and lower the basket
20 and as schematically represented on Fig. 2A of the above mentioned French application, such a rack and segmental pinion combination operated manually by a control knob being already disclosed in the US patent No 3 463 077 concerning a domestic deep fryer, the present combination fully retains
25 the mechanism of the above published European patent application but combines it with automatic motor controlled lifting means for the basket.

A detailed embodiment of the invention will now be described in relation with the drawing accompanying the
30 description and representing a schematic sectional view of the deep fryer in accordance with the invention wherein the elongated handle shown in the horizontal position may be automatically operated by an electric motor or seized manually .

The domestic deep fryer shown schematically is that disclosed in the European patent application published under No 0008838 and previously referred to. More specifically, the figure generally corresponds to Fig. 9 of that application

5 whose Figs. 7 and 8 show the schematically represented handle 1 in greater detail, its Figs. 10 and 11 representing the way in which it can be manipulated to raise and lower the open-work basket 2 shown in full line at the bottom of the deep fryer vat 3 and in interrupted lines in its upper

10 position where its upper rim 4 is generally at the level of the upper rim 5 of the vat just under the lid 6 of the appliance. The handle 1 is shown in interrupted lines in its horizontal position since the latter corresponds to the basket 2 being raised. As described in the published

15 European application, this occurs with the help of the link element 7 which in a horizontal plane (not shown) has a U-shape so that its two legs such as 8 can slide through corresponding openings in a bracket 9 slidably mounted in a recess 10 in the upper rim 5 of the vat. The handle 1

20 is pivotally associated in 11 with the link element 7. Due to the shown nose shaped end 12 of the handle, when the latter is pivoted from its vertical position (not shown) to its horizontal position (arrow 13) the nose shaped end 12 will rotate along the outside surface of the bracket 9 and

25 in so doing will pull the U-shaped link element 7 towards the outside of the vat (arrow 14).

Then, the two legs such as 8 of the connecting link element 7 are no longer in their full line position advanced towards the inside of the vat but more to the right in the

30 drawing and this corresponds to the raised position of the basket 2 (arrow 15). This displacement of the basket is obtained with the help of the upper and lower connecting rods 16 and 17 which in a horizontal plane have a semi-circular shape (not shown) and are each pivoted in their central

35 part inside slots 18 and 19 respectively provided in an

extension 20 of the bracket 9 and integral therewith.

In its central part, the upper connecting rod 16 has moreover a bow shaped extension 21 which is engaged into corresponding slots provided in the end parts of the U-shaped legs such as
5 8 of the connecting link 7. Thus, upon the handle 1 being raised to the horizontal position shown, the U-shaped connecting link 7 drawn towards the right through bracket 9 will pull the central bow shaped part 21 of the upper connecting rod 16 which will therefore pivot around 18 and
10 in so doing lift the basket 2 to which it is pivotally connected at 22, the lower connecting rod 17 being likewise pivoted on the basket 2 in 23.

By providing an electrical motor 24 inside the outer cover 25 of the deep fryer and underneath the vat 3,
15 it is also possible to operate the U-shaped connecting link 7 and thereby automatically raise or lower the basket 2. As schematically indicated by the arrow 26, the motor is able to rotate in either one or the other direction and in so doing drive longitudinally in one or the other direction
20 (arrow 27) an endless screw arrangement 28. In its outer right position, the latter is linked by 29 to a lever 30 shown in full lines in a vertical position. A pivot 31 associates link 29 with lever 30 which is pivoted at 32 on an outside pillar 33 integral with the housing 25 and suitably
25 recessed in order to be able to house both the lever 30 and the handle 1 when the latter is in its dropped vertical position (not shown).

Above its horizontal pivot 32, the free upper end 34 of the straight lever 30 cooperates with the U-shaped horizontal
30 connecting link 7 in such a way as to pull the latter towards the right outside the vat upon motor 24 drawing the connecting link 29 towards the left so that the lever takes the oblique position shown in interrupted lines (arrow 35). Thus, in this position, the basket 2 will have been raised and the
35 handle 1 will also be in the horizontal position to indicate

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the action accomplished by the motor 24. This can occur for instance by the upper end 34 of lever 30 abutting against the central part 36 of the U-shaped connecting link member 7. This upper end 34 should be suitably shaped, e.g. forked or slotted (not shown), to avoid any interference with the horizontal pivot 11 coupling the handle 1 to the link 7. Alternatively (not shown), the upper end 34 may also abut against this pin 11 instead of with the central part 36 of the link.

10 Rotation of the motor 24 in the opposite direction will return lever 30 to the vertical position and lower the basket 2 which, as in the published European patent application, will by its weight return the handle 1 to the vertical position (not shown) alongside the outer part 25 of the
15 appliance. Both the handle 1 and the lever 30 may be suitably shaped to avoid interference and automatic displacement of the basket or manual handling are completely independent with the ability to latch the handle 1 into the shown horizontal position and in such a way that it may no
20 longer rotate around pin 11. This is obtained by the latching mechanism 37 described in detail in the published European patent application. Thus, once latched in this way, the handle 1 may be used to lift the basket 2 out of the appliance, the bracket 9 sliding out of the slot 10 in the
25 rim 5 of the vat 3. Since the upper end of lever 3 merely cooperates with the connecting link 7 by abutment, lifting the basket in this way and replacing it in the vat does not necessitate any other action, correct repositioning of the bracket 9 automatically ensuring that the upper end 34 of the
30 lever 30 will be suitably positioned inside the U-shaped link 7 thereby enabling the motor 24 to control further desired movements.

 However, upon the handle 1 being latched in the shown horizontal position by means of mechanism 37, operation
35 of the motor 24 will be without effect, the upper end 34 of

the lever 30 being free to travel inside the U-shaped link 11. Thus, overriding priority is given to manual control always ensuring that the basket 2 can remain in the upper position outside the frying oil.

5 Electronic controls (not shown) associated with the automatic operation by the motor 24 can also be associated to limiting contact switches schematically indicated by 38 and 39. These cooperate with the endless screw arrangement 28 to limit the movements thereof between two predetermined
10 positions.

 Various modifications and variants with respect to those shown in the preferred embodiment of the invention are of course possible. For instance, the motor 24 may be linked to the sliding link 7 by other means. In
15 particular, the endless screw mechanism 28 could be replaced by a linkage or cam arrangement producing the appropriate movement for the lever 30.

Claims

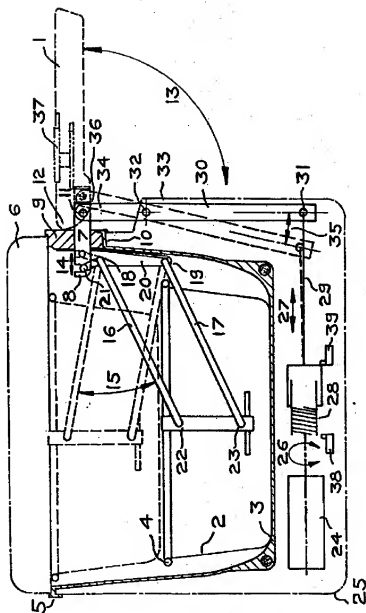
- 1) Electrical cooking appliance including an open-work basket (2) with handle (1) in which a motor (24) is coupled to the basket in order to raise and lower it with respect to the
5 appliance vessel, characterized in that the coupling mechanism (28, 29, 30) connecting the motor to the basket includes a pivoted (32) lever (30) acting on a movable link member (7) able to slide in and out of the cooking vessel (3) and connected to the basket to displace it inside the vessel.
- 10 2) Electrical cooking appliance including an open-work basket (2) with handle (1) in which a motor (24) is coupled to the basket in order to raise and lower it with respect to the appliance vessel, characterized in that the coupling mechanism (28, 29, 30) connected to the motor acts on the handle enabling
15 the basket to be manually displaced inside the vessel but without interfering with such a manual operation.
- 3) Electrical cooking appliance as in 2, characterized in that the handle is connected to a bracket (9) able to be temporarily associated to the cooking vessel (3),
20 displaceable locking means (37) preventing, when they are operated, relative displacements between the basket, the handle and the bracket but, when they are not operated, enabling movements of the handle to displace the basket inside the vessel.
- 25 4) Electrical cooking appliance as in 1 and 3, characterized in that both the pivoted lever and the handle act on the link member.
- 5) Electrical cooking appliance as in 1 or 2, characterized in that the coupling mechanism includes an
30 endless screw arrangement (28) transforming the rotation of the motor (24) in one or the other direction into a linear displacement.
- 6) Electrical cooking appliance as in 1 or 2, characterized in that the motor (24) and part of the coupling
35 mechanism (28, 29) are positioned under the cooking vessel (3).

7) Electrical cooking appliance as in 3, characterized in that the handle (1) includes displaceable locking means (37) preventing, when they are operated, relative displacements between the basket (2), the handle and the bracket (9) but, when they are not operated, enabling movements of the handle to displace the basket in and out of the cooking vessel (3), the automatic operation under the control of the motor (24) being ineffective as long as the locking means are operated.

8) Electrical cooking appliance as in 1, characterized in that the movable link member (7) is U-shaped with both legs (8) of the U able to slide in and out of the cooking vessel (1), a free end (34) of the pivoted lever (30) moving inside the U-shaped link member so as to displace the latter at least in one direction by pushing thereon.

9) Electrical cooking appliance as in 8, characterized in that the basket (2) is pivotally (16, 17) coupled to the U-shaped link member and pulls it in one direction by gravity action.

10) Electrical cooking appliance as in 3, characterized in that the pivoted lever occupies a substantially vertical position on the side of the appliance and next to the handle when the latter is released to its vertical position.





European Patent
Office

EUROPEAN SEARCH REPORT

0149856

Application number

EP 84 20 0070

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (int. Cl. 7)
D,A	EP-A-0 008 838 (ITT)		A 47 J 37/12
D,A	US-A-3 975 997 (DI PIETRO)		
D,A	US-A-3 908 531 (MORLEY)		
A	DE-A-3 221 433 (KRUPS)		
A	GB-A-2 115 260 (SANYO)		
A	US-A-3 242 849 (WELLS)		
A	US-A-3 187 664 (JENNINGS)		
D,A	US-A-3 463 077 (LESCURE)		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 14-09-1984	Examiner SCHARTZ J.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	